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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,083	03/08/2001	Thomas P. Glenn	G0049M	8521

7590 10/03/2003
Serge J. Hodgson
Gunnison, McKay & Hodgson, L.L.P.
1900 Garden Road, Suite 220
Monterey, CA 93940

EXAMINER

MALDONADO, JULIO J

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,083

Applicant(s)

GLENN ET AL.

Examiner

Julio J. Maldonado

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-21 is/are allowed.
- 6) ☒ Claim(s) 1 and 4-13 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's cancellation to claim 2 is acknowledged.
2. Claims 1 and 3-21 are pending in this application.

Response to Arguments

3. Applicant's arguments, see pages 8 - 11, filed 07/12/2003, with respect to claims 14 and 21 have been fully considered and are persuasive. The rejection of claims 14 and 21 has been withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4-7 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wojnarowski (U.S. 5,888,884) in view of Roberts, Jr. et al. (U.S. 5,362,681).

Wojnarowsky (Figs.1-7 and 9) teaches a method to form alignment marks (90) comprising aligning a drilling device at a first intersection of a first scribe line and a second scribe line coupled to a first surface (32) of a substrate (30); drilling through said substrate (30) at said first intersection with said drilling device from said first surface (32) of said device from said first surface to a second surface (34) of said substrate to form an alignment mark (90); aligning a saw (400) with said first scribe line using said alignment mark (90), wherein said saw (400) comprises a laser saw and cutting said

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substrate (30) comprises cutting on the scribe lines from said second surface (34) (see Fig.7); and singulate electronic components (36) of said substrate (30), wherein said electronic components comprises integrated circuits (column 6, line 20 – column 8, line 65).

Wojnarowsky fail to teach coupling a front-side surface of a wafer to an interior surface of a transparent wafer support; optically recognizing a scribe grid coupled to said front-side surface of said wafer, wherein said support protects the front surface of said substrate; and washing said substrate to remove contaminants generated during said cutting. However, Roberts Jr., et al. (Figs.2-5) in a related method to singularize a semiconductor wafer teach coupling a front-side surface of a wafer (32) to an interior surface of a transparent wafer support (26), wherein said support protects the front surface of said substrate and is sufficiently transparent to allow intersections in a wafer to be optically inspected through said wafer support (26); and washing said substrate to remove contaminants generated during said cutting (column 7, line 33 – column 9, line 7). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Roberts Jr. et al. and Wojnarowsky to enable the steps of coupling a front-side surface of a wafer to an interior surface of a wafer support, and furthermore because this would result in a method of separating individual dies that will provide better protection to the microstructures formed in said die (column, 3, lines 37 – 61).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wojnarowski ('884) in view of Roberts, Jr. et al. ('681) as applied to claims 1, 4-7 and 9-13 above, and further in view of Summerer (U.S. 6,537,836 B2).

The combined teachings of Wojnarowski and Roberts, Jr. et al. substantially teach all aspects of the invention but fail to show shining light of an angle to said second surface of said substrate to enhance recognition of said alignment mark. However, Summerer (Fig.1) in a related method for alignment of substrates teaches shining light of an angle to a surface of a substrate (12) to detect alignment marks (column 2, lines 4 – 31). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the alignment detection method as taught by Summerer to enhance recognition of an alignment mark in a second surface of a substrate in Wojnarowsky and Roberts, Jr. et al., since illuminating methods are well-known in the art to properly align a semiconductor substrate (column 1, lines 11 – 28).

Allowable Subject Matter

7. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 14-21 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, Wojnarowski to U.S. 5,888,884 teaches a method to form alignment marks (90) comprising aligning a drilling device at a first intersection of a first scribe line and a second scribe line coupled to a first surface (32) of a substrate (30); drilling through said substrate (30) at said first intersection with said drilling device from said first surface (32) of said device from said first surface to a second surface (34) of

said substrate to form an alignment mark (90); aligning a saw (400) with said first scribe line using said alignment mark (90), wherein said saw (400) comprises a laser saw and cutting said substrate (30) comprises cutting on the scribe lines from said second surface (34) (see Fig.7); and singulate electronic components (36) of said substrate (30), wherein said electronic components comprises integrated circuits (see Figs.1-7 and 9 and column 6, line 20 – column 8, line 65).

However, Wojnarowski fails to teach optically recognizing said first intersection through said wafer support.

Response to Arguments

10. Applicant's arguments filed 7/12/2003 have been fully considered but they are not persuasive.

Applicants argue that Wojnarowski in view of Roberts, Jr. et al. do not teach or suggest a method coupling a wafer support to a first surface of a substrate since the surface of the substrate in Wojnarowski must be processed. In response to this argument, the claim is open to treat the surface of the substrate prior to couple the surface of the substrate to the wafer support. Also, Wojnarowski wasn't relied upon that purpose.

Conclusion

11. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November


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1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.


JMR
9/17/03


George Fourson
Primary Examiner